

## EFT 700 NO<sub>2</sub> CONVERTER EFFICIENCY TEST DEVICE

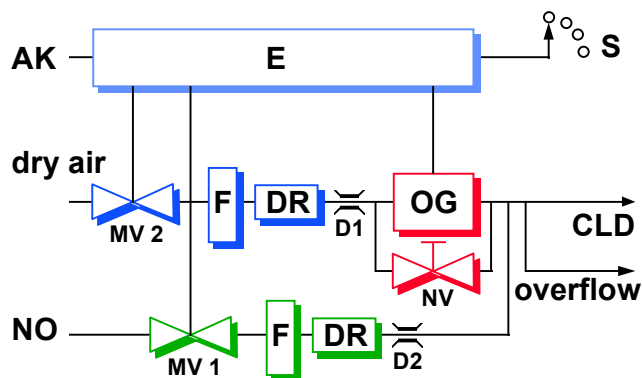
### Application:

- The EFT allows the efficiency test on NO<sub>2</sub>-converters of CLD NO<sub>x</sub> analyzers in a simple way (according to US EPA regulations).



### Concept:

- Gas Phase Titration (GPT) between NO and O<sub>3</sub>
- manual or automatic execution of GPT with approx. 80 ppm NO
- Control by the CLD NO<sub>x</sub> analyzer (AK)



Instrument block diagram: basic instrument

### Legend:

E:	electronic control signals from CLD (AK) or via switch selection
MV 1, MV 2:	magnetic valves
F:	particle filter
DR:	pressure regulation, factory adjusted
OG:	ozone generator
NV:	needle valve for the adjustment of the O <sub>3</sub> concentration
D 1, D 2:	orifices for flow restriction
S:	switch

## Principle of function

### NO-mode:

the NO gas is conducted to the sample input of the analyzer (with an absolute pressure of 3 - 4 bar) via the magnetic valve MV 1, filter F, pressure regulator DR and critical orifice D 2. Two gas outlets, 1 directly to the CLD and an overflow provide a pressure-free supply of the gas and the inlets of the CLD analyzer.

### NO + air mode:

in this mode dried air (with an absolute pressure of 3 - 4 bar) is conducted via the magnetic valve MV 2, filler F, pressure regulator DR and critical orifice D 1 to the ozone generator. The air is mixed with the NO.

*The mixing ratio NO / air is factory adjusted and may not be changed.*

### NO + ozone mode:

in this mode the ozone-generator is started. The correct ozone concentration is dependent on the selected NO gas. The operator can adjust the ozone concentration within a large range with the needle valve NV.

### Connections:

The cable with the (control signals from the CLD for the automatic control of the EFT 700 is connected to a 5 pin DIN socket on the EFT. The control voltage 24 VDC is on pins 1 and 4.

- Earth on pin 2 controls MV 1
- Earth on pin 5 controls MV 2
- Earth on pin 3 controls ozone generator
- LED's on the front plate of the EFT are indicating the operating conditions (even in AK mode)

The connection to the mains (115V/230 V, 50 - 60 Hz) is made via a cold instrument plug with integrated mains fuse. The adjustment to the appropriate operating voltage is made with a service jumper on the PCB (correct fuse has to be set).

### Maintenance:

The pre-connected inline filters protect the pressure regulation and needle valve. Thus, cleaning and maintenance inside the instrument are not required. The cartridge with "purafil" must be replaced if adsorbent is consumed.

### Warnings:

- the UV-lamp is working with high voltage
- works on the EFT in operating condition are to be done only by authorized personnel
- the gas on the outlet of the overflow line contains up to 100 ppm NO<sub>2</sub>. Either a cartridge with "purafil" must be connected or the overflow line must be led outside the room.

### Specifications:

Input pressure:	3 to 4 bar absolute
Output pressure:	ambient pressure
NO flow:	2.2 l/min.
Flow of synthetic air:	220 ml/min.
Mains:	230 V/50 Hz or 115 V/60 Hz
Control voltage:	24 VDC
Gas connections:	1/4 „Swagelock“

*ECO PHYSICS reserves the right to change these specifications without notice (2005).*